	April			May			June			September		
	Date	Chinook	coho	Date	Chinook	coho	Date	Chinook	coho	Date	Chinook	coho
2006	24-27			15-18			14-17			12-15		
KB					39			41			40	
BC		37			39	39		37	38		39	
SV								44				
OR												
2007				13-16			17-20			9-12		
KB					83			84			32	
BC					66	75		82	76		81	74
SV					57			73			40	
OR					80			86			40	
2008				12-15			9-12			16-19		
KB					38	42		39	44		39	39
BC					81	90		115	106		80	54
SV					47	50		38	40		41	42
OR					42	39		40	41		37	32
2009	17-20			12-15			16-19			11-14		
KB					43	41		28	41			
BC		36	42		82	80		80	83		79	55
SV					43	38		44	42			
OR					41	42		37	37			
2010	23-26			17-20			15-18			20-23		
KB					36	40		40	38			
BC		83	55		80	87		79	66		79	51
SV					37	50		32	41		39	30
OR					41	35		41	36			

Table S1. Dates and numbers of Chinook and coho salmon exposed at 4 lower Klamath River index sites from April - September 2006 - 2010. Exposure groups with greater than 40 fish were evenly divided at the Salmon Disease Lab, Oregon State University, and reared at 2 different temperatures. Fish exposed at all sites in 2007 and BC from 2007-2010 were equally divided at the SDL and reared at 2 different temperatures. Numbers in 2008 were greatest as these overlapped with a larger experiment. Exposures in October (27-30) 2009 at BC used 81 Chinook and 82 coho.

Site		April Chinook %mort	April Chinook MDD	April coho %mort	April coho MDD	April Cq	May Chinook %mort	May Chinook MDD	May coho %mort	May coho MDD	May Cq	June Chinook %mort	June Chinook MDD	June coho %mort	June coho MDD	June Cq	September Chinook %mort	September Chinook MDD	September coho %mort	September coho MDD	September Cq
2006																					
KB	13°C						0	0			35.4	0	0			35.9	0	0			37.5
	>15°C																				
BC	13°C	0	0			35.8	0	0	5.1	54.4	30.6	16.7	46.1	2.6	49.0	27.0	0	0			37.1
	>15°C																				
SV	13°C											2.3	73.0			29.1					
	>15°C																				
OR	13°C																				
	>15°C																				
2007																					
KB	13°C						0	0			36.2	0	0			29.7					34.2
	>15°C						0	0				0	0				0	0			
BC	13°C						2.6	38.0	6.7	35.0	30.8	2.4	39.0	2.6	40.0	29.6	4.9	53.3	2.5	55.0	31.6
	>15°C						27.0	27.0	86.7	29.3		40.0	18.0	81.6	27.4		2.5	23.0	29.4	27.7	
SV	13°C						0	0			30.0	0	0			28.2					33.1
	>15°C						7.7	29.2				45.0	20.9				10.0	31.5			
OR	13°C						0	0			33.0	0	0			30.8					33.0
	>15°C						2.4	23.0				4.7	21.0				0	0			
2008																					
KB	13°C										32.5					35.7					34.4
	>15°C						0	0	19.0	37.5		0	0	13.6	33.0		0	0	25.6	44.0	
BC	13°C						72.5	31.3	49.0	46.0	29.3	68.8	31.4	67.0	34.8	27.4	0	0	5.7	55.0	28.7
	>15°C						75.6	21.7	65.9	31.9		89.3	22.0	84.8	24.0		10.3	20.4	78.9	27.2	
SV	13°C										28.1					28.9					30.5
	>15°C						46.8	31.8	42.0	40.7		60.5	21.0	80.0	24.4		14.6	22.8	69.0	26.1	
OR	13°C										32.8					30.7					31.0
	>15°C						2.4	81.0	20.5	41.8		0	0	7.3	37.2		0	0	25.0	27.6	
2009																					
KB	13°C										36.3					38.1					
	>15°C						0	0	9.8	34.7		3.6	32.0	4.9	49.4						
BC	13°C	13.9	37.7	0	0	28.4	68.3	31.7	15.4	62.8	29.0	74.3	30.8	5.3	37.8	29.8	0	0	0	0	40.0
	>15°C						78.1	22.2	26.8	54.7		86.7	19.7	57.8	37.7		0	0	6.7	86.3	
SV	13°C										29.6					32.3					
	>15°C						41.9	25.6	13.2	41.8		70.5	19.9	40.5	38.0						
OR	13°C										30.1					35.9					
	>15°C						4.9	33.5	2.4	50		13.5	23.5	8.1	65.4						
2010																					
KB	13°C						0	0	0	0	43.0					40.4					
	>15°C											0	0	0	0						
BC	13°C	0	0	0	0	38.5	0	0	0	0	31.7	0	0	0	0	30.7	0	0	0	0	39.2
	>15°C	17.1	26.9	0	0		17.8	28	15.4	29.1		20.0	20.4	10.3	40.1		0	0	0	0	
SV	13°C						2.7	53	0	0	34.0					32.7					38.8
	>15°C											12.5	27.3	4.9	35.5		0	0	6.7	64.8	
OR	13°C						0	0	0	0	39.1					35.2					
	>15°C											2.4	23.0	0	0						

Table S2. *Ceratomyxa shasta*-induced mortality (% mort) and mean days-to-death (MDD) of coho salmon and Chinook salmon after a 3-day river exposure and density (Cq) of waterborne spores in 1-liter water samples collected during the sentinel fish exposure (3 x 1 liter at the start and end) at 4 lower Klamath River mainstem index sites from April through October, 2006 to 2010. Fishes were held at ambient (13°C) and elevated (>15°C) temperature in the laboratory. Sites are ordered in direction of flow: KB, Klamathon Bridge; BC, above confluence with Beaver Creek; SV, Seiad Valley; OR, Orleans. No mortalities were observed in October 2009 at BC for either Chinook or coho; the parasite density during this exposure was 36.1 Cq.

Variable	Parameter estimate	Lower 95% CI	Upper 95 % CI
Total density model			
Intercept	0.5310	-1.3484	2.0280
Log_{10} density	1.8720	0.8892	3.0242
Species (coho)	-0.1047	-0.49317	.2777
Site			
KB	-2.0722	-3.7236	-0.8877
SV	-0.6407	-1.1257	-0.1856
OR	-1.969	-3.1814	-1.0220
Rearing temp (> 15°C)	2.9973	1.3915	4.9252
Log_{10} density * Rearing temp (>15°C)	- 1.3608	-2.5782	-0.2809
Genotype-specific density model			
Intercept	2.1227	1.4511	2.7146
Log_{10} genotype density	0.8263	0.4691	1.2386
Species (coho)	0.2660	-0.1519	0.6834
Site			
KB	-1.7673	-3.3688	-0.6160
SV	-0.5185	-0.9971	-0.0679
OR	-1.7524	-2.9271	-0.8376
Rearing temp (> 15°C)	1.0924	0.6603	1.5546

Table S3. Parameter estimates for final logistic regression models of *C. shasta*-induced mortality in Klamath River Chinook and coho salmon based on total parasite density and genotype-specific density. Chinook salmon and the site BC are the initial conditions for each of the models. Samples included in this analysis were from April-June 2006-2010; 20% of the data points were reserved to validate each of the final models.

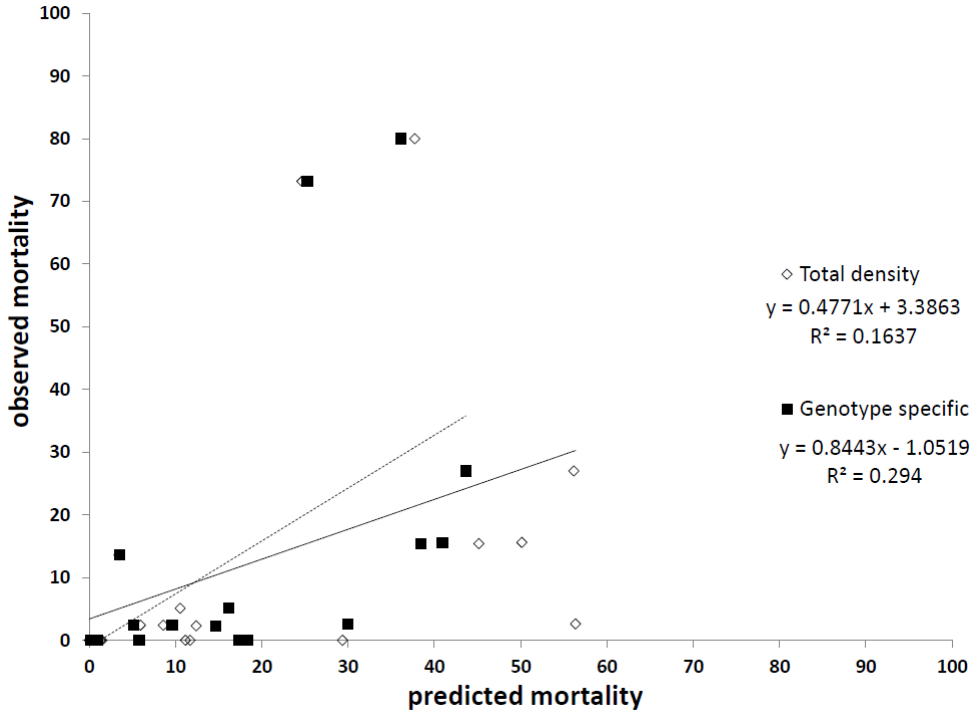

Figure S4. The relationship between observed *Ceratomyxa shasta*-induced mortality in both Chinook and coho salmon and predicted mortality based on 2 logistic regression models, total parasite density (open diamonds) and genotype-specific density (closed squares). Equations for best-fitting trend lines and R^2 are also presented.